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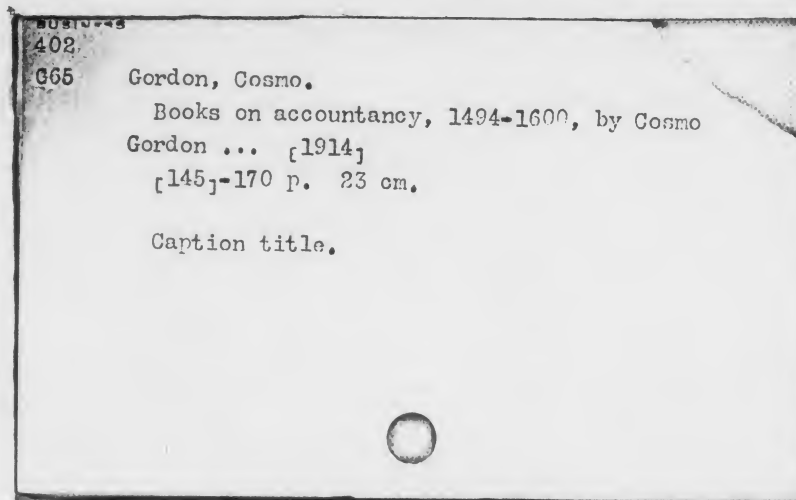
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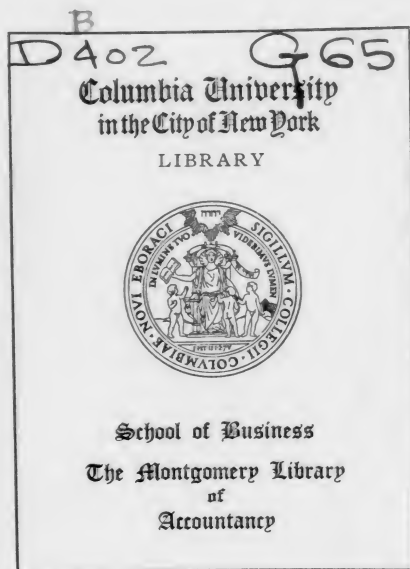
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Cosmo Gordon.

Books on Accountancy.

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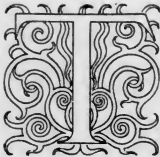
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BOOKS ON ACCOUNTANCY, 1494-1600.

By COSMO GORDON.

Read 16 March, 1914.

HE origins of the system of book-keeping by double entry have not yet been fully investigated. It is known to have been first practised in Italy, and has consequently been referred to as the Italian method almost down to the present day, though this reminder of its history has now dropped out of the text-books.

As has often been pointed out, double entry was not consciously invented by any one man, though there must have been an occasion on which it occurred for the first time to a book-keeper that his record of a particular transaction was not complete unless he kept his accounts from the point of view of those with whom he dealt as well as from his own and thus produced a balance by which to check both. When that occasion was no one can exactly say, but it probably fell soon after the beginning of the fourteenth century, at Genoa or Florence. The system was perfected in the course of the next hundred and fifty years, and was in a high state of efficiency when the printing press came to spread the practice to the rest of Europe. There it drove out and superseded the primitive methods of accounting which had satisfied the needs of a less organised commerce.

No complete history of double-entry book-keeping has yet been written. The researches of Dr. Ernst Ludwig Jäger of Stuttgart and of

Karel Peter Kheil of Prague have paved the way, while histories of the science in the country of its origin have been written by Signor rag. Bariola¹ and by Signor Brambilla.² Dr. Heinrich Sieveking has written on Italian and German origins, and late in 1913 was published a very complete history of book-keeping in Germany, by Dr. Penndorf.³ It is known that Dr. Kheil⁴ had a universal history in manuscript at the time of his death in 1905, and it is to be hoped that an editor may be found who is capable of completing and publishing his work. Mr. Richard Brown of Edinburgh has edited a *History of Accounting and Accountants* in which is given a summary of hitherto published information together with much additional matter from the pen of Mr. J. Row Fogo. Mr. H. A. Woolf⁵ of the Inner Temple has also written a short history. The bibliography of the subject is in much the same fragmentary condition. National bibliographies have appeared for Italy,⁶ France,⁷ and the Low Countries,⁸ and attempts at general bibliographies are included in the Histories of Messrs. Brown and Woolf.

It is not the aim of this paper, nor within the competence of the writer to give a history of book-keeping; even a complete bibliography is too wide a task within the time available for its compilation, but it may be serviceable to describe the most important works published before the year 1600 when the science was spreading with rapid strides over Europe

(1) Plinio Bariola. *Storia della ragioneria italiana*. Milan, 1897.

(2) Guiseppe Brambilla. *Storia della ragioneria italiana*. Milan, 1901.

(3) B. Penndorf. *Geschichte der Buchhaltung in Deutschland*. Leipzig, 1913.

(4) Dr. Kheil industriously collected books on book-keeping of all ages for more than forty years and got together 1,700 volumes, including many important early books. This collection is now in the possession of the Institute of Chartered Accountants in England and Wales.

(5) H. A. Woolf. *A short history of accountants and accountancy*. London, 1912.

(6) *Elenco cronologico delle opere di computisteria e ragioneria venute alle luce in Italia* [by G. Cerboni]. Rome, 1889.

(7) G. Reymondin. *Bibliographie méthodique des Ouvrages en langue française parus de 1543 à 1908 sur la science des comptes*. Paris, 1909.

(8) J. Hagers. *Bouwstoffen voor de Geschiedenis van het boekhouden in de Nederlanden*. Rotterdam, 1903.

from its birth-place in Italy, and in some cases to show the relation of these works to one another.

PACIOLI.

The earliest work on book-keeping falls just within the limits of the fifteenth century. It is a book of great importance, written by the foremost mathematician of his day, and giving so clear and good an exposition of the science that it was the foundation for nearly all the useful work of the succeeding century.¹

This is the *Summa de Arithmetica, Geometria, Proportioni et Proportionalità* of Lucas Pacioli of Borgo San Sepolcro, which was printed at Venice by Paganino de Paganini, and dated in the colophon 10 Nov. 1494. The book is a folio, and presents no very unusual features to an eye accustomed to the rather ponderous volumes which were freely produced by the Venetian presses of the late fifteenth century.

Of the 308 leaves which make up the book only thirteen are devoted to book-keeping. The pages are, however, large and closely printed: the book-keeping section in Kheil's reprint occupies 80 average octavo pages. Pacioli's book also contains the earliest printed treatise on algebra and summarises the mathematical knowledge of his day.

There are eight leaves of prefatory matter, without signature. On the second of these is a dedicatory epistle to Pacioli's patron, the Duke of Urbino, in which the author surveys contemporary achievements in Science and Art, mentioning by name his former master, Piero della Francesca, and calling him "the monarch of painting in these times." The dedicatory epistle is repeated in Latin, and the next two pages are devoted to a summary of the contents of the volume, in which the rather disproportionate prominence given to Accounting shows that the author did not regard the section as a mere appendix to his mathematical work.

(1) Mr. J. B. Geijsbeek (*Ancient Double Entry Book-keeping*, p. 9) overstates this. Gammersfelder in Germany, Mennher and Petri in the Low Countries, Salvador de Solorzano in Spain, and a few others, must be regarded as original authors.

The recto of sign. a 1 begins the text. It is surrounded by a wood-cut intaglio border of strapwork, and in the large woodcut initial L there is represented a Franciscan friar holding a pair of compasses. This may or may not be a portrait of the author, but it may safely be asserted to be more like him than the fanciful bust many times reproduced by the historians of book-keeping. The initial occurs again in several parts of the book.

The *Summa de Arithmetica* occurs in two states. In the first the body of the text is printed in Proctor's type 8, a medium-sized gothic. On sign. a 1, on which the text begins, there is the broad wood-cut border and portrait-initial L already described. In the second state of the *Summa*, of which the copy in the British Museum is an example, not only do the wood-cut border and initial disappear from a 1, but sigs. a-c with the two outside leaves of sigs. d and e, and the outside leaf of sig. a, are printed in Proctor's type 10**, a type not observed by him in any other book from Paganino's press. There are no changes in the text of the reprinted pages, but that they are reprinted is clear from the fact that incorrect head-lines are usually corrected, and that the type of the remaining pages in copies which contain the reprints shows signs of longer use than in copies where the text type does not vary. It may be supposed that a certain number of the sheets of the signatures in question were accidentally destroyed, and that type 8 was already in use. The sheets had, therefore, to be supplied in the nearest available type.

Fra Luca's book is divided into two parts, the first consisting of 224 leaves dealing with arithmetic; the second, of 76 leaves, with geometry. The thirteen leaves beginning on the verso of leaf 197 of the first part and ending on the verso of leaf 210 are entitled *Distinctio nona. Tractatus undecimus particularis de computis et scripturis*, and are devoted to book-keeping. A full and remarkably clear account of this section from a professional point of view, written by Mr. J. Row Fogo, C.A., is included in Mr. Richard Brown's *History of Accounting and Accountants*. It is,

therefore, unnecessary to do more than state that Fra Luca describes the best commercial practice of Venice, and that in essentials his book-keeping resembles that which is in use to this day.

The twelfth tract of the ninth distinction which immediately succeeds the book-keeping portion of the *Summa de Arithmetica* had been printed before at Florence in 1481.¹ It treats of the rates of exchange between the towns of Italy, and the Florentine edition is anonymous. It is therefore uncertain whether Pacioli was himself the author or merely reprinted a work which seemed to him of value.²

A second edition of the *Summa de Arithmetica* was printed in 1523 after Paganino had moved to the village of Toscolano on the Lago di Garda. It is surprising that so large a book should have been printed at so small a village, and I believe that the reason for Paganino's move is to be found in the remarkable title of the book, which is eloquent on the attractions of his new home. After naming the book, it continues: "newly printed at Toscolano on the shore of the Lake of Benaco most renowned for carp: a most agreeable spot, famous for the ancient and evident ruins of the noble city of Benaco: dowered with numberless Imperial epitaphs cut in ancient and beautiful letters, and with marbles of the finest and most admirable colours, and quantities of fragments of alabaster, porphyry, and serpentine. Dear reader you may be sure on the word of an eye-witness that hidden underground there are objects worthy of admiration."³

Henry Morley in his life of Jerome Cardan remarks: "Fra Luca, with a clerical enjoyment of good living, took so heartily to the fine carp of the lake that he could not forbear from making honourable mention

(1) *Questo e el libro che tracta di mercantie et usanze de paesi*. 4°. Florence, Francesco di Dino, 1481. Dec. 10.

(2) The question is fully discussed in V. Vianello *Luca Pacioli nella storia della ragioneria*. Messina. 1896.

(3) The second edition is printed to imitate the first very closely; the title-page has been made a more important feature as was now the fashion. It is surrounded by an inferior copy of the strapwork border of 1494.

of them on his title-page." The fact is that Fra Luca died in 1514, nine years before the second edition was printed, and therefore this enthusiastic title-page must be the work of the Venetian printer enjoying the beauties of the Lake of Garda.

In a preface to a treatise on book-keeping by Andreas Wagner,¹ published at Magdeburg in 1802, the author states that he is the possessor of a book of which he gives the following description: "La Scuola perfetta dei mercanti. Des Fra Paciolo da santo sepulchro. Venetia, 1504. In this book," continues Wagner, "which consists of 246 very badly printed pages, and is dedicated to Giacomo Brunani, the Head of the German House at Venice, is to be found firstly an explanation of the contemporary Venetian coins and weights, secondly a very short method of calculation, and lastly, in an appendix, a treatise on double entry book-keeping." No copy of the book thus described by Wagner is known to exist and much has been written on the question whether it be really by Pacioli. It is not mentioned in a schedule of his works presented by him to the Venetian Senate in 1508 with an application for copyright, and it is known that in the year 1504 he was not at Venice to superintend its production. It is therefore probable that the conclusion reached by Prof. Vianello² is right, that the *Scuola perfetta* is a garbled reprint of parts of the *Summa de Arithmetica* brought out by some enterprising publisher on the expiration in 1504 of the ten years' privilege attaching to that important work.

Several translations of the part of Pacioli's book which deals with book-keeping were published in the nineteenth century. It was first translated into German by Dr. E. L. Jäger as part of his book *Lucas Paccioli und Simon Stevin nebst einigen jüngeren Schriftstellern über Buchhaltung*. Prof. Vincenzo Gitti next published a modern Italian version at Turin in 1878. Since that time it has been translated into Russian by

(1) Neues Vollständiges und allgemeines Lehrbuch des Buchhaltens für jede Art der Handlung passend . . . Entworfen . . . von Andreas Wagner. 4°. Magdeburg, 1802.

(2) V. Vianello. *Luca Paciolo nella storia della ragioneria*. pp. 58-61.

Waldenberg (St. Petersburg, 1893), into Dutch, under the title *Paciolo's Verhandelng over de Koopmansboekhouding*, published at Rotterdam in 1896, and into Bohemian by Kheil. This last translation has the merit of being accompanied by a trustworthy literal reprint of the original edition, than which it is much more convenient for working purposes.

Late in 1914 the whole of Pacioli's book-keeping chapter was published in facsimile, together with a free translation into English, by Mr. John B. Geijsbeek,¹ a Certified Public Accountant of Denver, Colorado. This book should prove very useful to historical students of book-keeping, but it does not add to our bibliographical knowledge.

MANZONI.

The *Summa de Arithmetica* had a wide influence in Europe. The chapters on book-keeping were adapted and translated many times in the course of the succeeding century, and indeed where they are not directly copied it is usually evident that the authors of books on accounts were familiar with Pacioli's tract.

The *Summa de Arithmetica* is, as has been mentioned, an exceedingly unhandy book, and by the year 1534² must have been looked upon as very old-fashioned in form. In that year there appeared at Venice an adaptation of the *De scripturis* by Domenico Manzoni of Oderzo, entitled *Quaderno Doppio col suo Giornale*. It is a small quarto in italic letter, published by Comin di Tridino, who must have found it a valuable property, judging by the number of editions which it passed through. The real importance of the book is that it gives full examples of the Inventory, Journal and Ledger carried out in the name of Alvise Vallaresso, the author's patron, to whom also the book is dedicated.

(1) J. B. Geijsbeek. *Ancient Double-Entry Book-keeping*. 4°. Denver, Colorado, 1914.

(2) The date 1534 for Manzoni is given on the authority of Cerboni's *Elenco Cronologico*, and has been extensively quoted, but no copy of the first edition is mentioned in that work, and the edition of 1540, of which a copy is in the Institute of Chartered Accountants, is the earliest available for examination.

These examples occupy over three-quarters of the book, and are pronounced by Mr. Brown to be very careful work. The remaining 19 leaves contain the substance of the *De Computis*, rearranged,¹ and to some extent rewritten in more literary Italian than Pacioli's rather awkward and Latin-bestrewn sentences. At the end of his Preface to the Reader, Manzoni disclaims any aspiration to style in these words: "Dear reader, do not expect any ornamental language but my pure mother-tongue, which I have learnt in ordinary conversation, because I have no object but to make you an expert book-keeper: fine language I must learn from others." In the later editions he is more confident, and one can only hope that the following is not an ungrateful hit at Fra Luca, from whom he has stolen most of the material for his book: "With regard to style, I have contrived to speak pure Italian, and not mincing and affected Tuscan." I am afraid that this probably refers to Fra Luca's Tuscan birthplace, Borgo San Sepolcro.

In 1564 what was at least the fourth edition of Manzoni's book appeared from the same publisher under the new title *Libro mercantile ordinato col suo Giornale et Alfabeto*. This contains nearly all the matter of the earlier editions, slightly rearranged and with certain additions. Ch. 15 of 1540, the instructions for using the table of all the entries in the journal and ledger, is placed at the end of the book, and an explanation of roman numerals as used in books of account is in its place. The ledger, which was formerly called *Quaderno*, is now called *Libro Maestro*. At the end of the ledger are directions for making an index, or *estratto semplice*, in which the names occurring in the ledger are arranged alphabetically under their Christian names. This is followed by the Instruction for using the Table already mentioned, after which is another elaborate chapter of directions for making what is described as an *Alfabeto Doppio*. In this index entries are arranged under Christian names as before, and each letter is again sub-divided alphabetically under *cognome*, or surnames.

(1) Mr. J. B. Geijsbeek (*Ancient Double-Entry Book-keeping*, p. 29) gives a useful table showing the correspondences between Pacioli, Manzoni, Pietra *Indirizzo degli Economisti*, and Ympyn *Nieuwe Instructie*.

At the end of the book are 12 pages of calligraphic wood-cuts, the work of two famous writers of the day, Francesco Alunno and Frate Vespasiano Anfiareo. The leaves containing these wood-cuts are often missing, but copies of all editions from 1564 onwards should contain them. It may be mentioned that copies dated 1573 and 1574 do not in any true sense belong to separate editions, the unsold copies of 1573 having been hand-stamped with an extra I at the end of the roman numerals giving the date.

YMPYN.

We may now trace the spread of the Italian method of book-keeping by noticing the books which appeared in the other countries of Europe, incorporating with varying exactness the matter contained in Dist. IX, Tract. XI of the *Summa de Arithmetica*.

At Antwerp in 1543 there appeared in Dutch,¹ and in the same year in French,² a book by Jehan Ympyn Christoffels which is mainly a literal translation of Pacioli's book-keeping treatise, though in parts it is considerably amplified. Curiously enough it seems that Ympyn did not know to whom he was indebted for the greater part of his book, for he mentions Pacioli in his preface without any particular acknowledgment, and then goes on to say that he has obtained the treatise which follows from one Jehan Paulo de Biancy at Venice. All researches on the part of Kheil to discover who this personage was resulted in failure; it is most probable that he was a Venetian merchant who had used Pacioli's book and rewritten parts of it for his own use in the light of practical experience.

However Ympyn became possessed of the material for his book he died before its publication, and both the Dutch and French editions were published by his widow, Anna Swinters.

(1) *Nieuwe Instructie ende bewijs der looffelijcker Consten des Rekenboecks*. Fol. Antwerp, 1543.

(2) *Nouvelle Instruction, et remonstration de la tres excellente Sciēce du tiivre de Compté*. 4°. Antwerp, 1543. There is a copy of this in B.M. It is not a folio as described by Kheil.

Ympyn's book was also translated into English. The only known copy of the English translation is in the Library of the Nicolai Museum at Reval.¹

This translation, which appeared in 1547, is entitled *A notable and very excellent woorke how to keepe a booke of accomptes*, and is not to be confused with another work of very similar title concerning which I am about to give such facts as are known.

OLDCASTLE.

A difficulty in writing of the early bibliography of book-keeping is the rarity of the books described. They were not books for the library, and were exposed to influences as destructive as the "puerorum unguibus" complained of by Dr. Leedes, the book-loving headmaster of Bury Grammar School. Of many of the books mentioned in this paper there exist, so far as has been ascertained, only one or two copies, and unfortunately the first English book on book-keeping does not seem to have survived at all. Our knowledge of the book is drawn from a reprint of it which appeared in 1588. This is entitled *A briefe instruction and maner how to keepe bookes of Accompts* . . . by John Mellis, a Southwark schoolmaster. In the address *To the Reader* in this book are these words: "And knowe ye for certaine, that I presume ne ufurpe not to fet forth this worke of mine owne labour and industrie, for truly I am but the renuer and reuiuer of an auncient old copie printed here in London the 14. of August. 1543. Then collected, and published, made and fet forth by one Hugh Oldcastle Scholemaster, who as appeareth by his treatise then taught Arithmetike, and this booke in Saint Ollaves parish in Marke Lane."

In spite of this precise information, no other trace of the existence of Oldcastle's book is to be found except that given by B. F. Foster in the preface to his *Origin and Progress of Book-keeping*, 1852. Foster

(1) It was first described by Dr. Hugo Balg in the *Zeitschrift für Buchhaltung*, April, 1893.

gives (p. 8) the exact title of Oldcastle's book, and, the bibliographers being silent, it is difficult to imagine where he can have found this unless it was from a copy of the book itself.

We know, however, from Mellis' reprint of 1588 that Oldcastle was little more than a literal translator of Pacioli. The chapters on banking are omitted and certain others not in accordance with English usage remodelled. Oldcastle adds certain new features—a description of the profit and loss account, and a revised method of keeping the books of small shops.¹

SCHWEICKER.

This was the book which first brought the Italian method to England, in the same year in which Ympyn's *Nieuwe Instructie* gave it to Dutch and French readers. Six years later the only German book which belongs directly to the Pacioli School appeared at Nürnberg. This was Wolfgang Schweicker's *Zweifach Buchhalten*,² printed by Johann Petreius, who had already published a book of more primitive type by Johann Gottlieb.

Schweicker takes Manzoni for his model and follows him closely. The specimen books of account, however, which illustrate the book, are Schweicker's own work, and very carefully executed they are. It will scarcely be believed that in a work which professes to teach the science of book-keeping, the final balance is wrong by more than 100 florins.

CARDAN.

Before leaving the subject of books inspired by the chapter in Pacioli's *Summa de Arithmetica*, there is one more to be noticed, though

(1) Pacioli's chapters 7, 11, 18, 19 are omitted. The correspondence of other chapters is as follows:

Mellis 15 = Pacioli 26. Mellis 20 = Pacioli 31. Mellis 22 = Pacioli 33.
 „ 19 = „ 28. „ 21 = „ 32. „ 25 = „ 36.

At the end of his reprint Mellis give specimen books of account.

(2) *Zweifach Buchhalten sampt seinen Giornal des selben Beschlus, auch Rechnung zuthun &c. Durch Wolfgang Schweicker Senior, von Nürnberg, yetz in Venedig wonend mit allem fleis gemacht und zusammen bracht.*

it was not published with the object of instructing merchants in a correct method of book-keeping. This is Jerome Cardan's *Practica Arithmetice*, published at Milan by Bernardino Calusco in 1539.¹ A great part of this book deals with errors detected by Cardan in the *Summa de Arithmetica*. Chapter 60, however, which is a short and quite remarkably clear exposition of the principles of double entry, does not amend the *Tractatus de scripturis*. There are no examples, and the author's aim is not to instruct the would-be book-keeper, but to summarise a science which had been considered worthy by Pacioli to rank as a branch of applied mathematics. Cardan was not satisfied that he had made the matter clear, for he says at the end of the chapter: "So much will suffice for the expert. But to the inexperienced in this science I do not think that I could make it clear even if I had taken up this whole book in explaining it."

TAGLIENTE.

Having now described the books on book-keeping which are directly related to the *Summa de Arithmetica*, it will be well to take the countries of Europe in turn, and consider the books published in each in which no part of Pacioli's text is incorporated, though the principles he describes are used to a greater or less extent in all of them.

The great commercial activities of Italy in the sixteenth century must have kept many hundreds of book-keepers busy, and in spite of that propensity among merchants to trust to luck, which is still common, there was evidently a demand for instruction in the science of book-keeping. In 1525 Giovann' Antonio Tagliente published at Venice two short cuts to book-keeping which are the forerunners of many hundreds of A B C methods published in all ages down to the present day.

Of these two pamphlets one describes double, the other single entry. The first is a quarto of 24 leaves with no title-page. On the recto of a 1 is

(1) The *Practica Arithmetice* was reprinted in the complete edition of Cardan's works published at Leyden in 1663, and the chapter on book-keeping by Prof. Vinc. Gitti at Turin in 1882.

a short preface stating that the author, considering how necessary it is for gentlemen and merchants to understand the method of keeping accounts, has composed this guide with the help of Maestro Alvise de la Fontana. The body of the book is taken up with rules for describing all sorts of transactions, three or four to a page, each immediately succeeded by an example. On the recto of the last leaf is a colophon¹ stating that the title of the work is *Luminario di Arithmetica*.

The other pamphlet, describing single entry (*libro ugnolo*) consists of 16 leaves only, and begins in the same way on a 1 with a preface in which Tagliente says how necessary he considers single entry book-keeping for merchants and "Artesani"—the *libro doppio*, as stated above, being addressed to gentlemen and merchants. In this book the rules and examples are in large type and only one to each page. At the end is a colophon in the same form as before, and giving the book the same name of *Luminario di Arithmetica*, though the pamphlets are perfectly distinct, and intended for the use of different classes.

An octavo edition of the *Libro Doppio* was printed in 1533 and was succeeded by various leaflets of the same character which were published from time to time in Venice.

The first of these successors of Tagliente in order of date is a little octavo of 8 leaves, entitled *Opera che insegna a tener libro doppio, e a far partite, e ragion de Banchi, e de Mercantie, e a riportare le partite. Nouamente stampata*. This was printed in 1539, and resembles Tagliente's *Libro ugnolo* in arrangement. In 1551 Bartolommeo Fontana, Tagliente's collaborator, set his name to a badly printed little brochure of 4 leaves entitled *Ammaestramento nouo che insegna a tener libro ordinariamente ad uso di questa inclita citta di Venezia*. A rather more ambitious pamphlet of the same year is *Un modo novamente ritrovato ch'insegna tener libro*

(1) The British Museum copy of this book has the colophon slightly reset, but in other respects it resembles the copy at the Institute of Chartered Accountants. There is an article on Tagliente's accounting books by Signor P. Rigobon in the *Ragioniere* for 1894 (Serie II, Vol. X).

doppio. This consists of 12 leaves, and offers information varying from the cutting of pens to the rates of exchange between the principal towns of Italy. Fontana's *Ammaestramento nuovo* was republished in 1583 in an enlarged form extending to 8 leaves.

All these books are of the chap book order and no doubt many others of the same kind circulated in Venice at this time of which copies have not been preserved.

CASANOVA.

In 1558 Comin di Tridino, the publisher of Manzoni's *Quaderno doppio*, printed a book of more importance. This was Alvise Casanova's *Specchio lucidissimo*. There is in this book a preface in the form of a dialogue between the author and a friend, in which Casanova refers in honourable terms to Pacioli and Manzoni. He then goes on to say that many years before he had seen a little quarto book at the house of a friend written by one Tagliente, who kept a writing-school, and that he has also heard the Blind Hawker on the Rialto bridge chanting the title of a book which teaches the usual method of book-keeping. This is Fontana's brochure already mentioned. Casanova's friend answers by begging him not to repeat the hawker's cry. He has seen the books and they are only fit to wrap sardines in.

Casanova's book is written with a special purpose. Pacioli and Manzoni had failed to deal with the accounts of companies or partnerships—Pacioli avoiding the point by recommending that the accounts should be kept separately.¹ Casanova supposes the case of two brothers who build a ship which they send on foreign ventures in which is invested the capital of several merchants. He gives examples of the accounts at length, and also those of agents or factors who buy and sell for their masters and have to account for money and goods received.

(1) Brambilla, p. 66.

COTRUGLI.

In 1573 there appeared at Venice a small octavo entitled *Della Mercatura et del Mercante perfetto*. This has attained some unmerited fame from the fact that it claims in the colophon to have been written in the year 1463 "apud castrum Serpici," near Naples, by one Benedetto Cotrugli of Ragusa. If this is true, the three pages devoted to book-keeping are the earliest known theoretical writing on the subject. But in any case they are not of great importance as they do no more than mention the three books, memorial, journal, and ledger without any attempt to explain their use. A second edition of this book, Brescia, 1602, is in the British Museum, and Dr. Kheil has written a pamphlet reprinting the chapter on book-keeping and discussing its importance.¹

PIETRA.

But the best author of the century in Italy, and the only one who makes any improvement on Pacioli, is Don Angelo Pietra, a monk of the Benedictine house of San Giovanni Battista d'Oriana. In 1586 he published his *Indirizzo degli Economi* at Mantua. It is a small folio treating of the accounts of monasteries, and is a careful and efficient piece of work. The novelty in theory introduced by Pietra is the analysing of journal entries in great detail in the ledger.

This monastic book of accounts is certainly the clearest and easiest to follow that we have met with so far. It would be difficult to judge if Pietra, and his successor, the Jesuit Flori in the seventeenth century, had any influence on mercantile book-keeping, but it is certain that the business men had something to learn from the methodical treatment of these monastic authors.

SCHREIBER.

It has already been mentioned that a book founded on the *Quaderno doppio* of Manzoni had been published at Nürnberg in 1549. Before,

(1) Benedetto Cotrugli Raugeo. *Ein Beitrag zur Geschichte der Buchhaltung*. Vienna, 1906.

however, the original work of Pacioli had thus found its way into Germany, at least three works on double-entry book-keeping had been published, the authors of which were more or less conversant with Italian methods, though their books contain certain distinctively German features.

The earliest of these is a small octavo of very varied contents by Henrich Schreiber, or Henricus Grammateus as he began to call himself after taking his master's degree at Vienna in 1518. The title occupies 17 long lines of type, but it may be referred to shortly as *Ayn new Kunstlich Buech*.

Schreiber's book was printed at Nürnberg in 1521¹ by Johann Stuchs for the well-known Viennese publisher Lucas Alantsee, about an eighth part of it being devoted to a very rough account of *Buchhalten durch Zornal Kaps und Schuldtbuch*. The curious word Kaps or Capus, for which there is no satisfactory etymology, indicates a book devoted to the impersonal accounts of the ledger, which it was the German practice to keep in a separate book.

Schreiber's only merit is that of being first in the field, and even German authors are inclined to accept Mr. Row Fogo's estimate, when he says: "It seems better on the whole not to trouble to find out the arithmetic master's intentions, for it is extremely improbable that he himself knew much about what he was professing to teach." Nevertheless, the *New Kunstlich Buech* was reprinted many times² and one Jacob Kaltenbrunner, who published an arithmetic in 1565, incorporated the book-keeping portion of Schreiber's work without acknowledgment in his book.

(1) From the fact that the preface is dated from Vienna in 1518 it has been asserted (most recently by Dr. Penndorf, *Geschichte der B.*, p. 107) that the book was published in that year, but the examples of books of account are dated 1521, which gives good reason for supposing that it did not appear till that date.

(2) According to Dr. Penndorf there were editions in 1531 and 1538. It was certainly reprinted in 1544 and at Frankfort in 1572 under slightly varying titles.

GOTTLIEB.

Numerous works on book-keeping appeared in Germany from this time onward. Dr. Penndorf has described them in a careful chapter of his history of book-keeping in Germany, so it will only be necessary to review the German books generally, giving such additional details as may seem useful.

The first book published in Germany which is entirely devoted to book-keeping is Johann Gottlieb's *Ein Teutsch verstendig Buchhalten für Herren oder Gesellschaftler*. 4°. Nürnberg, 1531. This first edition is very rare. Two or possibly three copies are recorded in Germany, and there is one at the Institute of Chartered Accountants. It consists of only 22 leaves, but unlike Schreiber's exposition it is the work of a man with practical experience, for Gottlieb is known¹ to have held an administrative post in Nürnberg. In his second work, *Buchhalten, zwei Künstliche vnnd verstendige Buchhalten*, which appeared in 1546, he alleges this public work as the reason why he has not before brought out an improved edition of his earlier work. The new book gives fuller examples than the *Teutsch verstendig Buchhalten*, and omits or reduces to a more concise form much of the text of the latter. Gottlieb's second book was printed by John Petreius, the bookseller who three years later undertook the publication of Schweiker's *Zwifach Buchhalten*.

ELLENBOGEN.

In the interval between the publication of Gottlieb's two books there appeared in 1537 *Buchhalten auff Preussische müntze* by Erhardt von Ellenbogen, a schoolmaster at Danzig. This book was printed, for a reason which it is difficult to understand, at the distant town of Wittenberg, and has become extremely rare. The only copy at present known is in the University Library at Königsberg, and of this there is an accurate transcription by Dr. Kheil in the Institute of Chartered Accountants. Ellenbogen begins his preface by saying that he learnt book-keeping in

(1) Penndorf, p. 113.

three hours, a statement which has a familiar ring to those who are acquainted with a certain class of book-keeping manual at the present day. His book is, however, commended by Dr. Penndorf as in certain respects an advance on Gottlieb's first attempt of six years earlier.

UNDERRICHT.

The first book to appear after the publication in 1549 of Schweicker's translation of Manzoni was an anonymous folio entitled *Underricht eines gantzen Handelbuchs*, printed at Frankfort in 1559. This book stands entirely out of the line of advance so far as the progress of the Italian system of double entry in Germany is concerned, though it is an excellent piece of work in its own way. It deals exhaustively with the accounts to be kept by agents on behalf of their masters for goods bought and sold in various parts of the country, and thus it is comparable to the last section of Casanova's *Specchio lucidissimo* which had appeared at Venice the year before. The German book is much more detailed and the system it describes is more complicated, but in some ways the two correspond closely.

GAMMERSFELDER.

In the library of the Nikolai-Gymnasium at Reval is a most interesting volume containing four books on accounting. The first is the unique copy of the English edition of Ympyn's *Nieuwe Instructie*, which has already been described. The second book is a copy of Schweicker's *Zwifach Buchhalten* of 1549, and the third is a book which is described by Dr. Penndorf as the most important work on book-keeping which appeared in Germany during the sixteenth century. It is also extremely rare; the only other copy at present recorded is to be found at Danzig. The title of the book is as follows: *Buchhalten durch Zwey Bücher nach Italianischer Art vnd weise gestellt Durch Sebastian Gamersfelder von Passaw Bürger vnd Deudscher Schulmeister zu Dantzigh . . . 1570.*

The two known copies of this book differ in the following way. The Reval copy has a short conclusion in which Gammersfelder answers the

question asked by the reader as to how a German schoolmaster, who has no commercial experience, is able to write a work on book-keeping. In the copy at Danzig the conclusion (*Schlusswort*) is longer, and the author explains that just as Schweicker¹ and Ympyn, whom he mentions by name, did not invent the science of book-keeping, but relied on the Italian practice of many hundred years, so he has made use of their books in learning the science of which he writes.

Dr. Hugo Balg of Reval has described Gammersfelder's book in a series of twelve articles which appeared in the *Zeitschrift für Buchhaltung* in 1900. He has the highest praise for the clearness of the schoolmaster's directions and for the manner in which the examples are selected so as to illustrate varying classes of entries systematically and without repetition. This praise is repeated by Dr. Penndorf, who calls the *Buchhalten durch zwei Bücher* the earliest useful book on accounting in the German language.

SARTORIUS.

There is at Danzig a copy of another book on book-keeping printed in that town two years later in 1572. It is described by Dr. Penndorf as being an imitation of Gammersfelder's book. It is partly in rhyme, and Penndorf's account conveys the impression that it belongs to the class, of which we have already seen something, of short-cut or cram books.

GOESSENS.

The last work on book-keeping published in Germany in the sixteenth century is by a Huguenot refugee from the Low Countries named Passchier Goessens. It was issued at Hamburg in 1594 and is more remarkable for clearness of arrangement and handsome appearance than for any technical advance in method. It is one of the few early books on accounting which seems to be fairly common, though whether this implies popularity or the reverse it is difficult to say. A copy in the

(1) Gammersfelder calls him Simon Schweicker, though his name as it appears on the title-page of the *Zwifach Buchhalten* is Wolfgang.

Institute of Chartered Accountants is interesting for its binding, which is in the style used for books of account in the seventeenth century. The bands are cut off short instead of being laced in, and two separate cords are passed under the bands, and secured by passing them through the back of the binding, which is stiffened with a strip of strong card. This binding is dated 1637.

MENNHER.

Another German whose works appeared in the second half of the sixteenth century was Valentin Mennher of Kempten, in Bavaria. He was a teacher of mathematics at Antwerp, and in 1550 published a mathematical work¹ in French, with a section on accounting. This comprises a short preface, a specimen Journal and Ledger, and an Index to the Ledger. The Ledger is termed *Liure de Dettes*, a literal translation of the German *Schuldbuch*, and the book next following is simply the German *Kaps* or *Güterbuch*, translated by Mennher *Liure de Marchandises*. The only copy of this first edition, which is in the University Library at Leyden, has bound up with it a second part, published by the same printer, Jan Loe of Antwerp, in 1556. This comprises a second treatise on arithmetic, and others on algebra and geometry. At the end of this second part is a *Conclusion* in which Mennher says that in the meantime his first book, that is, the *Practique brifve* of 1550, has been republished at Lyons "in good type and with the style much improved, but from lack of knowledge the figures are thrown very much out of order." This Lyons edition is stated by Hagers in his Bibliography to have appeared in the year 1555 from the press of Eustache Barricat, but he does not say where a copy is to be found.

In the *Conclusion* of 1556 Mennher also complains that French is not natural to him, but that none the less he has done his best. In 1560, however, he determined to do himself full justice, and in that year he

(1) *Practique brifue pour cyfrer et tenir liures de Compte touchant le principal train de Marchandise*. P. M. Valentin Mennher de Kempten. A facsimile reprint of the book-keeping section, by Dr. J. G. Ch. Volmer, appeared at Utrecht in 1894.

persuaded Christopher Plantin to print the book-keeping part of his *Practique*, with many additions and improvements, in a handsome folio and in German. The book is entitled *Buechhalten, durch Mich Valentin Mennher, Diser Zeit Rechenmeister allhie zu Antorf verordnet*. The book consists of 24 leaves, and the only new features are a short Address to the Reader and a four-page explanation of his book-keeping, *Bericht zum Buechhalten*. There is also a *Register fur den Jornal* which consists of short rules for making each journal entry. The German *Caps* or *Güterbuch* is retained and the Profit and Loss Account, whose absence from the *Practique* of 1550 has been pointed out by Dr. Penndorf, is absent here also. The only known copy of this edition is in the Musée Plantin. The late Dr. Max Rooses kindly sent this interesting volume to the British Museum for my use. Bound up in it I was surprised to find a copy of the edition of 1563, which was unknown to Kheil, and the discovery of which in the Staatsbibliothek at Augsburg was first announced by Dr. Penndorf.¹ This is a second German edition, printed by Egidius Copenius von Diest² at Antwerp, and contains various emendations of the Plantin edition published three years before. The Address to the Reader is developed into a dedicatory epistle to George Zimmerman of Danzig. The *Bericht zum Buchhalten*, now called *Vnderrichtung dises Buechhaltens*, has been extended and illustrated with specimen entries. The *Register fur den Jornal* is not reprinted as a separate item, but its several parts appear in the Journal itself, printed next the entries which they describe. The *Güterbuch* disappears, its headings being included in the ledger according to Italian practice, and finally, the *Profit and Loss Account* makes its appearance for the time in Mennher's writings as a distinct heading.

In 1565 Mennher published a mathematical work in octavo which contains a rearrangement of the same material which composed his French treatise of 1550. It is entitled *Practique pour brievement apprendre a*

(1) The book is a folio, not a quarto as stated by Dr. Penndorf.
(2) The publisher of Ympyn's *Nieuwe Instructie*, 1543.

Ciffrer, & tenir Liure de Comptes, avec la Regle de Cojs, Geometrie. Twenty four leaves with the sub-title *Seconde partie de ce Liure* contain the book-keeping section, and this part is dated 1564. The Ledger is now called by its correct French name *Le Grand Liure*, and the improvements of the 1563 German edition are incorporated. A full comparison of the editions of 1550 and 1565 will be found in Kheil's *Valentin Mennher und Antich Rocha*, Prag, 1898.

ROCHA.

In 1565 Mennher's first book was translated into Spanish and appeared anonymously in a small octavo¹ at Barcelona. It is sometimes found bound at the end of the *Arithmetica* of Antich Rocha, which appeared from the same publisher, Claudio Bornat, in 1564. In the list of authorities consulted for this work is found the name of Valentin Mennher, and thus it may be assumed that Rocha was the translator. Mennher's original edition has the text printed lengthwise on each page, an arrangement which has not been adhered to in the translation, and it is evidence of considerable carelessness on the part of either translator or printer that this alteration has thrown out the alphabetical order of the ledger index, and the mistake has been left uncorrected. This translation of Mennher was however the first book with examples of merchants' accounts which appeared in Spain by more than 25 years, and its readers were no doubt grateful for what they could get.

PETRI.

It would be surprising if any book on accounting in the Dutch language had appeared between the years 1543 and 1588. The Dutch were exerting all their energies in the struggle with Spain and commerce must have been almost at a standstill. It is probable that Mennher's book sufficed for such needs as there were, and evidence that they were in use in Holland is given by the fact that the next book of importance

(1) Not quarto as stated by Kheil. *Valentin Mennher und Antich Rocha*, p. 50.

which was written in Dutch bears evident traces of his influence. This was a book by Nicolaus Petri¹ which is said to have appeared at Amsterdam in 1588.²

Though the influence of Mennher is traceable in Petri's book, Mr. Row Fogo has shown that there is a great technical advance on the former, though not greater than between the earlier and later editions of Mennher's own book.

W. P.

Petri's book has a special interest for us, as the book-keeping part was translated into English in 1596 by one W. P. The translation forms part of a mathematical work entitled *The Pathway to Knowledge*. The only copy I have seen, unfortunately wanting its title-page, is in the library of the Society of Incorporated Accountants and Auditors. The full title, according to Mr. Brown, is *The Pathway to Knowledge. Conteyning certaine briefe Tables of English waights, & Measures. And lastly the Order of Keeping of a Marchant's booke, after the Italian manner, by Debitor & Creditor . . . Written in Dutch, & translated into English by W. P. London 1596.*

ENGLISH, FRENCH AND SPANISH BOOKS.

The books on accounting other than translations of Pacioli which appeared in England, France and Spain in the sixteenth century may be mentioned very briefly. The only English books are two interesting folios by James Peele, the father of George Peele the dramatist. The first of these appeared ten years after Oldcastle in 1553, and the second, a very much enlarged treatise, in 1569. The poet's father practised the art himself and both books contain pieces of verse which cannot be said to reach a very high level, but are sometimes not mere doggerel. His poem

(1) *Practique omte leeren Rekenen Cypheren end Boekhouwen.*

(2) A copy of this edition wanting its title-page is in the Public Library at Rotterdam, and Petri mentions this first edition in the preface to the book-keeping portion of the second edition which was printed at Alkmaar in 1596 in octavo.

called *An exhortation to learne sciences* belongs rather to the fifteenth than to the sixteenth century in form, but is evidently the work of one who took more than a casual interest in literature. The only perfect copy which is known to me of Peele's first book is included in the Kheil Collection and is now at the Institute of Chartered Accountants.

The French translations of Ympyn and the little book laboriously composed in that language by Mennher are the first French books on accounting which appeared. The Lyons reprint of Mennher's first book in 1555 is the earliest printed in France itself. Twelve years after, also at Lyons, there appeared the first native French book by Pierre de Savonne. This book is mentioned by Reymondin, but he does not say where a copy is to be seen, and there does not seem to be one in England. An Arithmetic by Martin Fustel, published at Paris in 1588, has a chapter on book-keeping with examples of the Journal and Ledger. Dr. Kheil made one of his accurate transcripts of this book. This is now in the Institute of Chartered Accountants. The Institute also possesses in this form the *Instruction nouvelle pour tenir le liure de Compte* of Bartelmy de Renterghem which appeared at Antwerp in 1592. This is a more important book, and in the preface are mentioned, and very fairly criticised, many of Renterghem's forerunners. Most of the names in his list are familiar, but there is one, Martin Wensseslaus, like Renterghem, an inhabitant of Aix, whose works do not appear to have been preserved.

The history of book-keeping in Spain during the sixteenth century is also scanty, for the commercial energy of the country ran in a different channel from the peaceable exchanges of the Venetian trader and did not lend themselves to elaborate record. The translation of Mennher by Antich Rocha already mentioned is the first work giving examples of books kept by double entry which appeared in the language. In an Arithmetic by Gaspar de Texada, printed at Valladolid in 1546, there is a chapter occupying 10 pages on what is called the *Horden de Contadores*. This deals with the accounts to be kept by the stewards of landowners, but there is no mention of double entry and no examples are given.

The only book of the century which is really of Spanish origin is Salvador de Solorzano's *Libro de Caxa*, which appeared at Madrid in 1590. It is a quarto giving 53 leaves of explanation, and a specimen journal and ledger, the former containing 148 entries. This work has not been described by the historians of book-keeping, but it must suffice to say that Solorzano's book is entirely independent of direct influence by Pacioli and that he has a very good grasp of root principles. His explanations are, however, extremely prolix and it appears from the examples given that Spanish practice must have lagged behind that of the rest of Europe. In Solorzano's ledger, for example, there is no profit and loss account, and the only balance of the books is to be found in a not very detailed account headed *Salida deste libro*. Roman numerals are used throughout the book for recording sums of money, a practice which was very old-fashioned in 1590. It is true that a certain amount of prejudice against the use of arabic figures in books of account remained in the South of Europe during the sixteenth century. Manzoni uses arabic figures in his journal in 1540, but clings to the old usage in his ledger, as being the more formal document. In later editions however it is thought necessary to give an explanation of the roman system, and Casanova in 1558 dispenses with it altogether, but 40 years later in Spain roman numerals were still in regular use, as we see from Solorzano's specimen books.

We have now seen the spread of the famous Italian system of book-keeping over the various countries of Europe and noticed the most important books, both those containing the work of Lucas Pacioli and those which describe the same method in different words. Something may perhaps be gathered from the places of origin of the books bearing on the commercial state of Europe in the Renaissance period. The fact that the first book in German was sold by a Viennese bookseller may be connected with the movement eastward which the great European trade route from Italy is known to have undergone in the sixteenth century, and that several books appeared at Danzig and

none at Lübeck may point the same way. It is not however within the scope of this paper to follow up these considerations. My aim has rather been to provide some future historian of Book-keeping, or indeed of Commerce generally, with an intelligible guide to the earliest text-books on the subject of his study.



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